Fleet Public Health

Navy Environmental Health Center

Volume 5, No. 3

July, 2000

NEPMU-5
San Diego, CA

More than Just a Façade of Readiness

There is an emerging breed of terrorism that threatens the security of American forces deployed overseas. This new breed of terrorism is called "Bioterrorism." Bioterrorism is any act of terrorism by an individual or group using a biological agent as their weapon to inflict damage to property or human life. Sound like an issue for the FBI or the CDC? As military personnel, how vulnerable are we? What are we doing now to ensure that we are prepared to respond appropriately, or better yet, to prevent it from happening? To answer the preceding questions, we must first understand the level of threat and the consequential events that could follow after an attack.

The Scenario: Among the things our sailors look forward to on an extended deployment are the port visits. The harsh reality of it though is that we are vulnerable while on R&R in foreign ports. We potentially expose ourselves by patronizing the local establishments like restaurants and bars. And what about taking souvenirs back to the ship? These items are potential reservoirs for biological agents that can be released by the unsuspecting sailor. Another harsh reality of this situation is that it will take a few days before the agent is identified. In a confined environment like our ships, the potential for spreading the agent is very high. The ensuing events can have dire consequences not only to the morale and health of the crew, but to the overall mission of the Navy.

The Threat: There are several rogue nations that are suspected to have an active chemical and biological warfare program. Some of these nations are potential sponsors for terrorist groups against the United States. But why does it seem that biological agents became the weapons of choice for these groups overnight? The answer lies in the fact that biological agents are far deadlier than chemical agents. They are simpler and cheaper than nuclear bombs. They are invisible, odorless, tasteless, extremely lethal, and can spread nationwide.

After the breakdown of the Soviet Union, Russia inherited its offensive biological warfare program. Russia is currently the world's leading holder of bioweapons. Among its arsenal of biological weapons is a stockpile of dried anthrax. The world was not aware of the extent of Russia's biological program until the defection to the United States of Ken Alibek, the former deputy director of Biopreparat, Russia's agency in-charge of the bioweapons program.

It was not until the end of the Gulf War that the U.S. became aware of the extent of Iraq's bioweapons program. Iraq is suspected to have produced half a million liters of botulinum toxin, anthrax, ricin, and aflatoxin. This amount is enough to wipe out the population of an entire nation. According to UNSCOM, the agency created by the UN to search and destroy Iraq's chemical and biological weapons program, by the time they got to Iraq, the majority of the evidence (equipment and documents) were gone. Possibly these were all buried in the Iraqi desert, and the Iraqis are just waiting for the right time to come.

(Continued on page 5)

Inside this Issue:

From the S.E.L.

I'd like to begin my first *From the S.E.L.* by wishing "Fair Winds and Following Seas" to HMC Suzanne Black who transferred to the Fleet Reserve on 29 February and HM1 Clark Schulz on 31 May. They left behind a team of enlisted professionals that are a sincere pleasure to lead. I'm thankful for the opportunity and humbled at the challenges that lay ahead. A special thanks goes out to HMCS Boss (8432 detailer) for sending me here. It seems appropriate that I share the content of the conversation that took place between him and me while I was "negotiating" for orders from Okinawa: "I gotta' send you to EPMU-5," he said, "If you'll just agree to it, it will be easier for both of us."

Secondly, a "Congratulations" is in order for HM2(FMF) Garth J. Gumienny, NEHC PMT of the Year and HM1 (SW/AW) Paul A. King, NEHC Sailor of the Year; to all those who made rank off the September Advancement Examination; and especially to the HM1's who made the CPO board. I share your excitement!

I checked aboard NEPMU-5 in mid-October after an accompanied tour with the III Marine Expeditionary Force, Okinawa. It was an exceptional three years—challenging and rewarding jobs, a very warm and welcoming culture, and endless opportunities. It's great to be back, but the decision to leave Okinawa was a difficult one. I recommend a tour to Japan's southern most prefecture for anyone (or family) craving an exciting tour of duty.

I discovered in the days leading to this article that I was having difficulty deciding on a topic that applied to all. So, as I have done in the past, I went about my business hoping that I would be inspired and the light would come on. This indeed happened. My inspiration and consequently, that flash of light came during a late afternoon visit to a medical facility and an administrative department. "What was this flash of light?" you ask. Customer service or more specifically—poor customer service.

Whether we like it or not, we all find ourselves in customer service roles, at one point or another. I can't think of a rate in the Navy that doesn't operate with a customer in mind. Think about what you do in your daily routine. It is exceptional during the workday that we *not* find ourselves on one side of the counter or the other. In fact, short of coffee and lunch breaks, I would venture to say that nearly all we do during the day is in support of someone or something.

I suppose (for the sake of an idea to address in this article) that I was fortunate to have received "a lack of" appropriate customer service twice in the same day. I'll be the first to say, in defense of both places, that these were unusual experiences. Generally I am pleased with the service they provide.

Each of us has been on the receiving end of customer service. And dare I say that 100% of us have had our share of experiences that we might have perceived as negative or at best, not what we expected as a customer. It will serve us well to remember those instances. I've loads of examples that could vividly describe customer service horror stories but I'll save you the time and myself the possible retribution (shot records, service records, pay, etc.). I will instead share my "philosophy" on appropriate customer service.

What is customer service? I think it is simply an interaction between those that provide support and those that require support. More importantly than what it is though, is: 1) that we recognize its value in meeting our mission; 2) that we be able to differentiate between good and bad customer service; and 3) we know when to call in reinforcements (ask for help.) I have found the following

(Continued on page 4)

Fleet Public Health
Vol. 5, No. 3, July, 2000

Fleet Public Health is published quarterly by NEPMU-2 (April), NEPMU-5 (July), NEPMU-6 (October), NEPMU-7 (January). Responses comments and suggestions for articles of timely interest are solicited. Send correspondence to the appropriate editor.

NEPMU-2
1887 POWHATAN STREET
NORFOLK, VA 23511-3394
Officer in Charge
D.C. Fulton, CAPT, MC, USN
Editor: E. Gomez, LT, MSC, USN

Phone: (757)444-7671, DSN: 564-7671
FAX: (757)444-1191, DSN: 564-1191
E-mail: gomeze@nepmu2.med.navy.mil
NAVENPVNTMEDU TWO NORFOLK VA

NEPMU-5
3235 ALBACORE ALLEY
SAN DIEGO, CA 92136-5199
Officer in Charge
J. E. Tueller, CAPT, MC, USN
Publishing Editor: Ms. B. S. Zimmer

Phone: (619)556-7070, DSN 526-7070
FAX: (619)556-7071, DSN 526-7071
E-mail: nepmu5@nepmu5.med.navy.mil
NAVENPVNTMEDU FIVE SAN DIEGO CA

NEPMU-6
1215 NORTH ROAD
PEARL HARBOR, HI 96860-4477
Officer in Charge
H. James Beecham III, CAPT, MC, USN
Editor: Mr. Bart Landis

Phone: (808)473-0555, DSN (315)473-0555
FAX: (808)473-2754, DSN (315)473-2754
E-mail: nepmu6@nepmu6.med.navy.mil
NAVENPVNTMEDU SIX PEARL HARBOR HI

NEPMU-7 SIGONELLA
PSC 824 BOX 2760
FPO AE 09623-2760
Officer in Charge
T. J. Anderson, CDR, MSC, USN
Editor: Karen S. Corson, LT, MSC, USNR

Phone: 011-39-095-56-4101, DSN 624-4101
FAX: 011-39-095-56-4100
E-mail: sig1pmu@sig10.med.navy.mil
NAVENPVNTMEDU SEVEN SIGONELLA IT

From the New OIC of NEPMU-5:

I'm very pleased to be typing a few lines to you as the new OIC of NEPMU-5. I inherited a wonderful staff and facility from CAPT Jim Beddard, the previous OIC here, and wish him the best in his new role as Director of Plans and Operations at NEHC. I'm glad to see former OICs in the chain of command, as they know first hand the realities and challenges faced by those in the "field".

My first exposure to an EPMU was in 1986. As a flight surgeon with a Marine squadron preparing for a WESTPAC deployment, I drove down to NEPMU-5 from MCAS El Toro to see what information I could gather about our upcoming destinations. The staff Preventive Medicine doc spent several hours with me discussing not only deployment advice, but also the field of Navy preventive medicine. While I now have forgotten the deployment gouge he provided, I still remember the favorable impression I received regarding the Navy Preventive Medicine community and how you support our operating forces.

As time went on I became more impressed with the importance of Preventive Medicine, pursued training, and eventually was assigned to NEPMU-5 as an epidemiology physician. I thoroughly enjoyed the opportunity that tour provided to practice Preventive Medicine and also work directly with the various operational commands in this area. The chance to work in operational settings is why I stay in the Navy. Since leaving here after that tour several years ago, I've been to an aircraft carrier, TYCOM staff, Naval War College, and component commander staff. And now back again. It's great to be in San Diego, and at NEPMU-5, too. For a native Californian like me, it can't get much better!

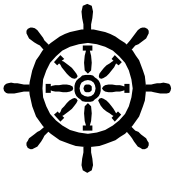
It's interesting to see what's changed at NEPMU-5 over the years, and what hasn't. An obvious change is the new lab and training building here, and renovation of the old spaces. The computers, communications, and classroom projection gear are several generations beyond those that I knew here previously. NEPMUs now have new missions in the area of CBR defense: providing training, and a response capability. The Forward Deployed Preventive Medicine Unit concept was conceived and is progressing along the path to reality. And our day-to-day support to the fleet has been transformed under the new structure of a Preventive Medicine Partnership program. These are exciting changes, and are successful due to the hard work of all of you in Navy Preventive Medicine.

So, what hasn't changed? I'm happy to see many of the civilian employees that I remembered from my earlier tour here. Our civilians provide much of the corporate memory at our commands, and probably don't get enough thanks. Also remaining is a strong commitment among all our staff to serving the fleet. That's one of the reasons that I'm happy to be working at an EPMU – it's a great opportunity to combine a shore preventive medicine assignment with direct support of our operational forces.

Another thing that remains is one of the enduring challenges of preventive medicine: How to provide the most effective service given scarce resources, and getting the value of that service recognized. How do we know where to direct our efforts, and how do we show that illness or injury was prevented? Data is essential. Indeed, adequate surveillance systems have always had major roles in good public health practice. And it's increasingly important considering the pressures to contain medical care costs (which in turn squeezes resources available for preventive medicine). We've still got some way to go, but due to the efforts of many of you we're making strides in the Navy toward improved disease and injury surveillance. This kind of data is essential at all organizational levels to develop priorities for our efforts, show effects of programs, and help recognize trends and outbreaks.

On a different note, by the time you read this we'll have recently celebrated a number of events important to us as a Navy and as a nation. These include Memorial Day (29 May), Battle of Midway anniversary (4 Jun), Normandy Allied invasion anniversary (6 Jun), Flag Day (14 Jun), Hospital Corps birthday (16 Jun), Korean War anniversary (25 Jun), and Independence Day (4 Jul). We should remember that our freedoms and way of life have been established and preserved with great sacrifices. We owe a great deal to those military members who have preceded us, and they deserve our utmost respect.

Lastly, Navy Preventive Medicine has an outstanding reputation of competence and contribution, which also has been achieved by great effort. That reputation has been built by the enthusiasm, hard work, and concern for the health of those we serve that is shown by you and our predecessors. And each of us reinforces that reputation daily by the way we perform our duties. I'm proud to be in the Naval service, and particularly in the Navy Preventive Medicine community where I can work with such outstanding professionals as yourselves.



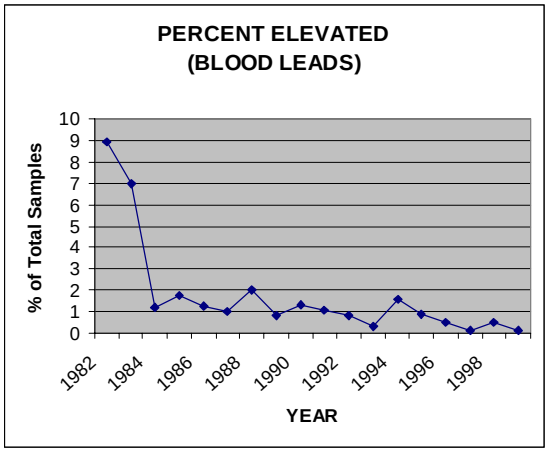
OIC, NEPMU-5

20 Years of Blood Lead Testing at NEPMU-5

The blood lead test has been requested by the Navy's Occupational Health Clinics and performed by NEPMU-5's Consolidated Industrial Hygiene Laboratory for over 20 years. In 1970 the Occupational Health and Safety Administration (OSHA) required that workers who were exposed to lead on their jobs be monitored in their workspace by industrial hygienists, and placed in a Lead Surveillance Program (LSP). Blood lead testing is mandated in this program, and is performed twice each year on workers who are, or may be, exposed to lead above the Action Limit (AL) for more than 30 days per year. Navy workers may be exposed to lead in abrasive blasting, metal cleaning, foundries, welding, shipyard occupations, and firing ranges. Outside the Navy, workers are exposed to lead in such additional occupations as automobile battery manufacturing (see www.osha.gov).

In 1999, 99.9% of the tests done at NEPMU-5 in San Diego showed less than the clinical normal limit of 20 mg/dL. Of 6,976 blood samples drawn from workers possibly exposed to lead on ships and on west coast Navy and Marine Corps bases, only eight samples (drawn from 5 persons) tested above the normal limit. The current most common exposure to lead in the Navy is firing ranges. Two of the five persons who tested above normal in 1999 engaged in extensive target practice on their own time; one additional person worked in a firing range. The remaining two were shipyard employees.

"Have we made any progress?" is a question commonly asked about the LSP. The numbers certainly indicate progress. In 1982, 8.9% of the blood lead tests done by this lab were above normal. About a thousand samples were processed annually in those early years, and the exposed population was mostly welders at the Long Beach Naval Shipyard (now closed). Leaded gasoline and paint containing more than 0.06% lead were still in use or being phased out. The following graphs indicate that while our total blood lead workload has increased, the absolute number of elevated abnormal lead tests has declined.



(Continued on page 7)

From the S.E.L.

(Continued from page 2)

pointers to be of great value throughout my career:

Can I help you? If you are going to ask "it," I suggest that you do so with the expectation that you are going to receive a "Yes" response. When you do, you're committed. Guide and assist until they've received what they came for. Don't dump them off on somebody else unless that somebody else is who they are looking for or that somebody else is the solution. Until that customer is satisfied, they're yours.

Does this mean service with a smile? Perhaps, but not necessarily a grin from ear to ear. More importantly, it's an avoidance of those facial features that say, "I don't have time for you." It's all about your attitude and perceived willingness to assist. It may help you to remember that you are not doing your customer a favor by doing your job! We are Unit representatives and consequently it's the Unit that fails when we allow ourselves to provide poor customer service.

Do I have to stop what I'm doing and answer a seemingly stupid question? Yes, but honestly, if your customer thought what they were asking was stupid, do you think they would ask it? I doubt it. Give 'em some credit. Things that are simple to us may not seem so simple to those on the other side of the counter. Common sense is relative to levels of training. Answer their question, to the best of your ability, without the added touch of sarcasm. If you don't know the answer, find it.

Does this mean that I have to give someone my undivided attention? Absolutely yes! Stop what you are doing and show genuine concern. A simple rule: If you give a customer only half of your attention, then you'll double the time and effort required to assist them.

Is the customer always right? I leave this for last because it's a tough one. For the sake of avoiding an endless barrage of "Yeah right!" comments, I think the answer is "not necessarily." I am inclined to say "yes" but I've come across a few over the years that just don't want to be satisfied. In the vast majority of cases though, I strongly believe that if it comes down to where this question must be answered, there was a breakdown somewhere in the customer service chain. Ask yourself what went wrong, give yourself honest answers, and make appropriate adjustments. If you find yourself in a position where you feel you've done all you can and still the customer is dissatisfied—seek assistance from your superiors.

SEL, NEPMU-5

More than Just a Façade of Readiness

(Continued from page 1)

Terrorist Threat: One group that had gained fame or notoriety is the Aum Shinrikyo cult in Japan. This was the group that released the nerve agent Sarin in a Tokyo subway in 1995 that killed 12 people and sent 5,500 others to hospitals. Perhaps our most zealous non-state enemy for the moment is Osama Bin Laden, the Saudi billionaire considered responsible for the U.S. embassy bombings in Kenya and Tanzania. Some of the published literature mentions his efforts to acquire bioweapons.

Dilemma: What makes it hard for authorities to deal with bioterrorism? Despite all the attention it attracted, definite solutions have been elusive. Realistically, the problem is so complicated that no quick-fix solution can solve it. First, consider the duality in the use of technology. The technology and equipment used in the manufacture of some food and medical products can easily be converted to manufacture biological weapons. The internet has also made bioweapons technology easier to acquire. Advances in biotechnology have also made it cheaper and safer to manufacture bioweapons. On top of that, terrorists usually operate in small mobile cells that are difficult to infiltrate. Because of that, they are harder to trace and are difficult to target for retaliation.

Recommendations: There are many schools of thought as to how we can protect our forces and prepare for, if not prevent, bioterrorism. Some policy experts recommend that to discourage would-be bioterrorists we need to let them know that we have the technology and the capability to respond quickly to any acts of bioterrorism. They say that by putting up this "façade of readiness" would-be bioterrorists may not attack at all. This concept hinges on the assumption that they will not waste their time and energy on a project that they know will not be "cost effective". Other policy experts say that vaccinating our forces and stockpiling vaccines is not the only solution but just a part of the solution. They say that we also need to build a strong public health system. We, in the military are fortunate because we already have strong preventive medicine programs in place, and we are the recipients of most available vaccines. I believe that these are all good steps toward resolving this issue. I also believe, that we need more than just a façade of readiness. We can do more. The following are some of my recommendations:

1. First, we need to recognize that our deployed forces are vulnerable. Every time an American warship visits a foreign port, our sailors and Marines are at risk.

2. Once we've recognized our vulnerability, we need to plan for the event. Put bioterrorism in the top list of priorities among other anticipated medical issues that we plan for in a deployment. This is a medical issue and it deserves to be a part of the deployment medical planning.

3. Bioterrorism should be made a part of every pre-deployment brief not only for medical personnel but also to the rest of deploying personnel. If we put the word out we can increase the level of awareness and increase the level of safety consciousness.

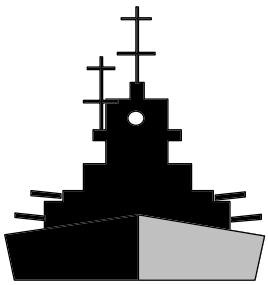
4. We can not afford to be complacent. We need to keep on repeating and re-emphasizing that we are at risk at every port we visit. Bioterrorism should be made a part of every in-port safety brief.

5. We need to train our medical personnel, from the SMO to the corpsman, in recognizing signs of bioterrorism. They will be the first responders and they must be able to identify those telltale signs that identify an outbreak. Line responders must also know how to protect themselves. We need to provide them the training in the medical management of these types of casualties.

6. There's a saying in the aviation community that goes like this: We train like we fight and we fight like we train. In the two years I spent at sea, we never had a bioterrorism scenario in any of our general quarters drills. Outside of the general damage control scenarios, our training was focused on a chemical attack on the ship. The engineers tested the ventilation systems for contamination, and they activated the wash-down system. Secured from training. I think you get my point.

To those who would think that this article sounded like the voice of the "boy who cried wolf," let me just say that history offers us proof that it can happen and we have nothing to suggest it will not. The possibility of a bioterrorism event involving our deployed forces is no longer a question of if…but a question of when.

Threat Assessment Department
NEPMU-5



Summary Notes for an Outbreak Investigation

One of the core public health functions that we in Navy Medicine have to be able to do is to investigate the outbreak (or alleged outbreak) of disease. When called on to do an outbreak investigation, here is the framework I use for organizing my thoughts and my report (report sections are in bold type). If you have to do this by yourself you will have all the bases covered – if you're calling in an outside consultant this format will help them pick up smoothly when they arrive.

Ensure Existence of Epidemic The plan here is to organize all the pertinent contact info in one place, establish your initial case definition (confirmed v. probable) and start to get baseline epidemiology/statistics/denominators.

Index Case: Name, etc.
Date of onset of symptoms:

Outbreak definition:
CDC defines an Organization-based outbreak as . . .

A Community-based outbreak is defined . . .

Case finding information:
The following sources were used . . .

Confirm Diagnosis See some patients and locations yourself until you get a feel for what's happening - you cannot do a good investigation without walking the ground and talking to the people involved, abstract data from pertinent records, and get confirmatory labs (call the laboratory and make sure that the samples are actually being processed and someone knows the current importance of the involved samples), make post mortem recommendations as appropriate. Consult an expert or two to make sure you're headed the right direction – and find out if there's a better test available out in the research world, etc.

Case Definitions used:
Probable case – Clinically compatible illness . . .

Index case/other cases (did or did not meet the definition)

Confirmed case – Isolation of . . .

Index case/other cases (did or did not meet the definition)

Estimate # of Cases Make a line listing - do your best to figure out how many people are probable/confirmed cases.

Orient the Data Plot the epidemic curve and make sure you are collecting appropriate types of information (i.e. person, place, time, job, sleeping where, eating where, family where, contacts where, infectious when, get maps). Here you do your best to start to "tell the story" of what has happened.

Population at Risk Need denominator information. Estimate the potential number of people "at risk" for the disease (the admin people at the base, etc. may be able to get this info for you).

Explanatory Hypothesis Mention known co-factors (mitigation and extenuation). "The epidemiological and clinical information available at the time of this investigation is most consistent with the diagnosis of . . ." (does the currently available data fit the picture?)

Comparison of Explanatory Hypothesis with Established Facts
Consistent or not? Does your explanatory hypothesis fit with the established facts – convince us – and don't leave out the weak points or inconsistencies.

Plan Systematic Study
Should this be done (i.e. case/control study to identify risk factors) – or is it not indicated?

Proposed Measures for Control/Prevention
(Convince & Risk Comm.) simple measures (i.e. hand washing, isolation) v. clinical (i.e. antibiotics, vaccinations)

"The CO was advised to . . ."

Risk Communication Establish single POC, early coordination with local public health gives 3d party validation of your public health action plan (and can tap you into some good local expertise), don't let media monopolize your time or obligate you for interviews - use local people whenever possible, use PAOs for media interface - you provide updates. Utilize someone else to get the fact sheets together (NEHC, NEPMU, local health departments) – these take some time and need to be done by someone who knows what they are talking about (make sure the PAO is NOT making his own – this has to be a joint effort).

Contacts
I contacted the following personnel or organizations during this investigation . . .

Written Report
A summary of findings was given to . . .

(Continued on page 7)

Summary Notes for an Outbreak Investigation

(Continued from page 6)

Other Comments

When possible you should follow current guidelines such as: P-5010, CDC, State Health Dept., and/or IAMFES (Procedures to Investigate Foodborne Illness, Procedures to Investigate Waterborne Illness, Procedures to Investigate Arthropod-borne and Rodent-borne Illness).

Finesse points – Remember that outbreaks, whether they prove to be real or not are very stressful for those involved (jobs and careers can be on the line). Remember at all times that your goal is to help people to do what is best to preserve health.

Get the job done in your most professional manner!

Investigations Team
Threat Assessment Department, NEPMU-5

Fleet Public Health Reader Survey

Please take a moment to complete the FPH Reader Survey on the reverse of this page. Knowing who our readers are and what you want in appearance, content and delivery is important to us. We intend to incorporate the survey results into the production of the newsletter, to the best of our ability.

Photocopying is encouraged!

Please mail or FAX your completed survey to NEPMU-5 by 1 SEPT at:

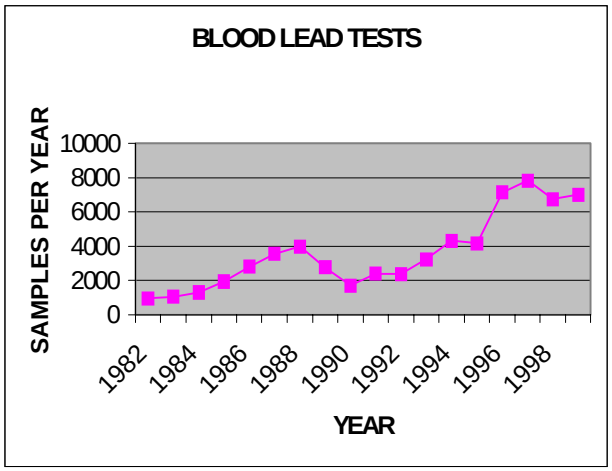
OFFICER IN CHARGE
ATTN FPH EDITOR
NEPMU-5
3235 ALBACORE ALLEY
SAN DIEGO CA 92136-5199

FAX: (619) 556-7071
DSN: 526-7071

Thank You!

20 Years of Blood Lead Testing at NEPMU-5

(Continued from page 4)



As OSHA monitors workers, the Center for Disease Control (CDC) sets limits for children's lead levels. The limit for children (10 µg/dL) is lower than for adults because of children's growing bones and bodies with potential increased absorption of lead. Recent studies show that even low levels of lead are harmful to children and are associated with decreased intelligence and impaired neurobehavioral development. The good news is that all 102 pediatric samples performed by our laboratory last year tested normal. CDC helped initiate the elimination by federal regulatory agencies of lead in gasoline, which brought about declines in the average blood lead levels in the U.S. population as a whole. The percentage of U.S. children with elevated blood lead levels has dropped from 88% in the late 1970's to 4% in the early 1990's (see www.cdc.gov). Some leaded items to which children are exposed are peeling paint in old housing, some old painted miniblinds, car batteries, dust in windowsills, and contaminated soil.

The average blood lead level for the U.S. population is currently 3-4 µg/dL. Similarly low levels are seen in other countries using unleaded gasoline, while cities still using leaded gasoline see much higher levels of blood lead. Bangkok citizens, for example, have an average of 40 µg/dL. The highest exposure seen in an individual in this lab last year was 41 µg/dL.

Because of technical phrasing in the OSHA Lead standard, such as "*exposed*" and "*may be exposed*", many blood tests have been performed by the Navy, as well as in the private sector, unnecessarily. Now that a considerable body of data has been collected indicating blood lead levels for the Navy population as being essentially equivalent to the United States average of 3-4 µg/dL, we can more credibly discontinue low risk individuals from the LSP.

To be on the "safe side," some branch clinics are using the lead test for "baseline determinations" and during "termination" physicals.

This article is presented so that health care decisions, as they concern lead exposure, may be more in tune with the NEHC motto: "Think populations, see individuals!"

Health Surveillance Laboratory
NEPMU-5

FPH Reader Survey

APPEARANCE

1. I think the **style** of the *Fleet Public Health* bulletin is: (*Circle one)*
   a. Far too casual
   b. A little too casual
   c. Fine as it is
   d. A little too formal
   e. Far too formal

   What do you particularly **like** about the **style**?

   What changes. If any, would you like to see in the **style**? *(Please be specific)*

2. I like the **typeface** or **font** used in the *Fleet Public Health* bulletin Yes / No *(Circle one)*

   If not, how would you like to see it changed?
   a. Larger font size
   b. Smaller font size
   c. Different font style (If so, what style?)
   d. Other (Please specify)

3. What do you think of the **layout** of the *Fleet Public Health* bulletin? *(Circle one)* (The layout is the arrangement of the material on the pages.)
   a. I like it very much
   b. It's pretty good
   c. I'm indifferent
   d. I don't care for it.
   e. I really don't like it.

   Whether you **do** or **don't** like it, how would you improve the layout? *(Please be specific)*

CONTENT

4. The range of topics covered by the articles in the *Fleet Public Health* bulletin is: *(Circle one)*
   a. Far too broad
   b. A little too broad
   c. About right
   d. Somewhat limited
   e. Very limited

5. The topics included in the *Fleet Public Health* bulletin are interesting or useful *(Circle one)*
   a. All the time
   b. Some of the time
   c. About half of the time
   d. Not very often
   e. Never

6. Is there any one article or topic you especially liked? (title:)

7.. What area(s) of interest would you like to see addressed that have not been?

8. In general, the articles are:
   a. Far too long
   b. A little too long
   c. About the right length
   d. Somewhat short
   e. Far too short

9. The technical level of the articles in the *Fleet Public Health* bulletin is: *(Circle one)*
   a. Far too technical
   b. Somewhat too technical
   c. About the right level
   d. A little too basic
   e. Far too basic

10. Who do you think is the intended audience of the *Fleet Public Health* bulletin?

11. Are we successfully focusing the FPH bulletin for that group ? (Circle one) Yes/No

METHOD OF DELIVERY

12. I have read the *Fleet Public Health* bulletin: *(Circle all that apply)*
   a. In hard copy
   b. On the internet (web page)
   c. Downloaded from the internet
   d. As an attachment to an e-mail

13. If it were not available in hard copy, I would read the *Fleet Public Health* on the internet. *Yes / No*

14. I would prefer to receive it *(Please rank-order your preferences, number 1 being your most preferred method.)*
   a. In hard copy
   b. On the internet or a download (on screen)
   c. Printed off the internet or a download
   d. As an e-mail newsletter
   e. As an e-mail attachment (PDF file)

15 What is your rank or grade? _____
(Military use E-1through E-9 or O-1 through O-6, Civilians use pay grade GS-5 etc., Others specify "other.")

16. Circle your activity type:
   a. NAVY OR COAST GUARD SHIP
   b. NAVY SHORE MTF
   c. NEPMU or NDVECC
   d. OTHER NEHC ACTIVITY
   e. NAVY SHORE NON-MTF
   f. MARINE CORPS ACTIVITY
   g. OTHER US MILITARY ACTIVITY
   h. NON-US ACTIVITY

Filth Flies and Military Operations

Part One of Two Parts

Filth flies are a major preventive medicine and disease vector issue for warm weather military exercises and operations, especially refugee and prisoner of war camps. A terrible nuisance, they can also impact the morale of the troops. For these reasons, fly control is often an important responsibility for preventive medicine personnel. Field messing facilities without adequate screening usually develop fly problems that make safe eating very difficult, if not impossible. Likewise, field latrines constructed without adequate fly exclusion can be nearly unusable. In mass casualty situations, such as battlefields and natural disasters, flies will breed in corpses and wounds, if they are not controlled or excluded.

SIGNIFICANCE OF FILTH FLIES ON MILITARY OPERATIONS

Filth flies interfere with military operations through transmission of disease, contamination of food, myiasis (larval infestation of human and animal tissue) and distraction from the job at hand. An increasingly persuasive body of evidence suggests that flies play a major role in the spread of enteric disease agents. These pathogens have impacted military operations throughout the history of warfare. Their impact on military operations and exercises since World War II underscores the need for fly control.

Reports of increased diarrheal rates and increased fly populations come from military campaigns in North Africa and the Middle East during World Wars I and II (Levine & Levine 1991). Colonel J.C.G. Ledingham (1920), of the British Royal Medical Corps assigned to the Mesopotamian Expeditionary Force in WW I, plotted fly density in relation to dysentery, showing a strong correlation. In World War II, at the battle of El Al Amein in North Africa, Axis forces suffered severe losses to combat troops due to dysentery. In 1958, a U.S. Marine force sent to Lebanon was incapacitated by dysentery within two weeks. U.S. Marine forces deployed to Lebanon in 1982 and 1983 relied heavily upon preventive medicine for protection. This commitment to preventive medicine, which included extensive fly control efforts, resulted in a very low diarrheal incidence.

Flies were a monumental nuisance in the Vietnam War. According to some reports, in one mess hall the fly infestation was so heavy that it was difficult to eat without ingesting at least one. It is impossible to estimate the disease transmission that may have been caused by flies in Vietnam, but it must have been significant. Several factors combined to make flies such a large problem. Many of the flies were breeding in villages near military camps, where flies had easy access to animal feces, garbage and poorly maintained dumps. Garbage collection and land-filling, especially at smaller bases, was often inadequate. Human feces in burn barrels were sometimes not completely incinerated, and grease traps were overused or used incorrectly. Heavy rains often interfered with the correct functioning of grease traps and soakage pits, and the hot, humid climate was conducive to rapid buildups in the fly population. In addition to all of this, corpses that had been exposed in the field for several days were heavily infested with maggots, requiring application of pesticides inside body bags.

Filth flies mechanically transmit a number of human disease agents, especially some causes of diarrheal illness. This mechanical transmission of disease agents is facilitated by the adult filth flies' habit of feeding on contaminated materials, as well as human food, and by the flies habit of vomiting and defecating while they feed.

The common factor in the ecology of the several species of filth flies is the need for rotting waste as a food source for adults and their maggots (larvae.) These materials are often carrion, feces and food wastes, with their associated pathogens. The potential for picking up microorganisms is high. Filth flies have numerous hair-like structures on their exteriors, dramatically increasing their bodies' surface area and aiding in the harboring of pathogens. Their deeply channeled mouth parts and six hairy feet (each with sticky pads) are easily contaminated as the fly walks, probes, and feeds across filth. The filth fly is a mechanical vector of disease in that it can pass pathogens from its contaminated body to our food, eyes, noses, mouths and open wounds.

While they favor a variety of rotting materials and feces, filth flies are also attracted to human foods. In addition to the great volume of pathogens that filth flies carry on the outsides of their bodies, they may also transmit disease to our food in their vomit and feces. Almost all filth flies have sponging-sucking mouth parts, and are incapable of chewing solid foods. They are, however, able to consume solid foods by regurgitating their stomach contents (along with pathogens) onto the material, allowing the vomit to liquefy the solid food and sucking the "soup" back into their mouths. Food is further contaminated as flies defecate while they feed. Kobayashi et al (1999) showed that *Escherichia coli* O157:H7, a potentially deadly serotype of this common bacterium, actively proliferates in the minute spaces of the housefly mouthparts, and that this proliferation leads to persistence of the bacteria in fly feces. Based on DNA evi-

(Continued on page 10)

(Continued from page 9)

dence, they further implicated houseflies as the source of *E. coli* in an outbreak in a daycare center in Kyushu, western Japan.

Table 1. Selected pathogens of Human Diseases Known to Contaminate Filth Flies		
amebic dysentery	anthrax	cholera
diphtheria	E. coli	eyeworms
hepatitis	intestinal worms	leprosy
polio	streptococcus	salmonellosis
shigellosis	tuberculosis	trachoma
typhoid fever	yaws	rotavirus

Over a hundred pathogens that cause human disease are known to contaminate filth flies; the most significant are listed in Table 1. There is, however, debate as to how great a role filth flies play in actually transmitting pathogens to humans and to what extent this transmission leads to disease. Depending on the pathogen and environmental factors, the role filth flies play in disease transmission can be significant, minor, or non-existent. There is strong evidence that flies play an important part in the human illness due to certain bacterial enteric infections.

Shigellosis is a diarrheal disease caused by *Shigella* bacteria that includes over 40 serotypes. Symptoms include fever, vomiting and cramps, nausea, and sometimes toxemia. The illness is usually self-limited and lasts four to seven days. Outbreaks commonly occur in crowded, unsanitary conditions, such as poorly maintained prisons, hospitals, day care centers, and refugee camps. Shigellosis is endemic in both temperate and tropical environments.

Transmission of shigellosis is mainly through direct or indirect fecal-oral routes. The prime route of transmission is thought to occur between individuals who fail to wash their hands after defecation and the persons and food they contact. It takes the introduction of only a few Shigella bacteria (as few as 10) to cause illness. While shigellosis transmission is felt to be primarily a disease of unwashed hands, Watt and Lindsay (1948**)** showed a strong correlation between filth fly populations and *Shigella* rates in humans (Figure 1). In later work, Cohen et al. (1991) found similar results, including reduced seroconversion in Israeli military camps with intense fly control. Similarly, Chavasse et al. (1999) showed dramatically reduced diarrheal rates in rural villages in Pakistan associated with fly control.

To be continued in the October issue of the Fleet Public Health.

Brooks AFB, Texas

NEPMU-6

References

Bolton, H.T., 1985. Field Preventive Medicine and Epidemiological Surveillance: The Beirut,Lebanon Experience, 1982 Military Medicine 150, 4:171.

Chavasse, D., R. Shier, O. Murphy, S. Hutley, S. Cousens, T. Akhtar. 1999. Impact of Fly Control on Childhood Diarrhea in Pakistan: Community-Randomised Trial. The Lancet. 353:22-25.

Cohen, D., M. Green, C. Block, R. Slepon, R. Ambar, S. Wasserman and M. Levine. 1991. Reduction of Transmission

(Continued on page 11)

Figure 1. Relationships between Filth Flies and *Shigella*

In South Texas, near the mouth of the Rio Grande, five out of nine towns were selected for fly control using DDT. Towns with control had reduced shigellosis rates (Watt & Lindsay 1948). After 20 months, the fly control regime was swapped with control implemented in the towns that had none and ceasing in the towns that initially had it. Resulting shigellosis, reported diarrhea, and infant mortality trend reversed accordingly.

A similar study supporting Watt and Lindsay's work was conducted among military personnel in Israel (Cohen, et. al 1991). Two self-contained military field units located several kilometers apart were subjected to two different filth fly control regimes. Both sites had field kitchens and chlorinated water sources with sanitation and hygiene rules enforced. Both camps had slit-trench latrines with wooden superstructures and hand washing was "encouraged." Cultures from both latrines were positive for *Shigella*. The Housefly, *Musca domestica*, was the predominant filth fly (88-98%). Of the houseflies, 6% were positive for *Shigella*. Both camps had fly control measures that included exclusion and pyrethroid spot spraying. For the study, intensive control measures (baiting and trapping) were implemented at one camp for eleven weeks. The other camp continued its routine control efforts. After eleven weeks, fly control regimes were swapped.

The base with intensive fly control had 64% fewer flies than the base with routine controls. Fly control correlated with 42% fewer diarrhea cases, 85% fewer cases of shigellosis and 76% fewer personnel with antibodies to *Shigella*. In analyses, 19 of 20 fly count/diarrhea and shigellosis comparisons showed lower values with whichever base having intensive fly control. Fifteen of the twenty comparisons were statistically significant.

(Continued from page 10)

of Shigellosis by Control of Houseflies (*Musca domestica*). The Lancet 337:993-997.

Kobayashi, M., T. Sasaki, N. Saito, K. Tamura, K. Suzuki, H. Watanabe and N. Agui. 1999. Houseflies: Not Simple Mechanical Vectors of Enterohemorragic *Escerichia coli* O157:H7. Am J. Trop. Med. Hyg. 61:625-629.

Ledingham, J. 1920. Dysentery and Enteric Disease in Mesopotamia from the Laboratory Standpoint. An Analysis of Laboratory Data during the Eighteen Months Ending December 31, 1918. J R Army Med Corps. 34:189-306.

Levine, O. and M. M. Levine. 1991. Houseflies (*Musca domestica*) as Mechanical Vectors of Shigellosis. Rev Inf Dis 13:688-696.

Watt, J., and D. Lindsay. 1948. Diarrheal Disease Control Studies: I. Effect of Fly Control in a High morbidity Area. Publ Hlth Reps 63:1319-1334.

Now Easier than Ever to Update Your Subscription!

NOW the following actions can be completed on the **NEW NEPMU-5 web site:**

http://www.nosc.mil/usn/nepmu5

- **Start a subscription**
- **Change of address**
- **Cancel a subscription**
- **Request back issues**

If you do not have internet access, please continue to send any address corrections, changes, additions or deletions to:

OFFICER IN CHARGE
ATTN FPH EDITOR
NEPMU-5
3235 ALBACORE ALLEY
SAN DIEGO CA 92136-5199

Regardless of method used to make change, please INCLUDE OLD ADDRESS for reference.

COMM/DSN FAX: (619)556-7071, 526-7071
E-mail: bszimmer@nepmu5.med.navy.mil

Health Promotion Resources

Are you in the San Diego area? Do you have an interest in Health Promotion? If your answers are "Yes," read on. You are no doubt familiar with the training courses available from NMCSD, but there are some Health Promotion resources available to the fleet and other operational forces in the San Diego area that you may not know about. The Fleet Health Promotion Working Group works to improve quality and utilization of local Health Promotion assets. The Working Group is a council of people with resources and people who use those resources. The former group includes NEPMU-5, the Naval Hospitals at San Diego and Camp Pendleton, the Naval Health Research Center, and the Naval Dental Center Southwest. Resource users in the group include 1st MAW, SURFPAC, AIRPAC, COMPHIBGRU-3 and the SURFPAC Regional Support Organization. We have people's talents to share, as well as material resources.

A Resource Library at NEPMU-5 has a multitude of training and educational materials related to health promotion and disease prevention. These include food replicas, posters, flip charts, and other training aids such as breast and testicular cancer models, oral cancer models, etc. There are two Cholestech machines for rapid measurement of blood cholesterol at health fairs; loans of the machines and technicians can be scheduled through CAPT Ledbetter (see below).

The Working Group provides a panel of experts in a variety of fields related to Health Promotion and disease prevention who are available to address your questions or concerns and would welcome your ideas for improving delivery of Health Promotion products to the fleet and FMF. Points of contact include:

NEPMU-5
COMNAVAIRPAC
NMCSD
CPG3 .

NEXT ISSUE: OCTOBER 2000
Your articles are due, ***via your chain of command*** by **15 AUGUST 2000** to:

OFFICER IN CHARGE
ATTN FPH Editor
NAVENPVNTMEDU SIX
1215 NORTH ROAD
PEARL HARBOR, HI 96860-4477

Quinolone-resistant *Neisseria Gonorrhea* on the Rise

Antibiotic and antiviral resistance continues to increase in many disease-causing organisms, making surveillance for resistance important in the struggle to remain one step ahead of the microbes. In the case of *Neisseria gonorrhea*, new techniques for identification of the organism in clinical samples have complicated surveillance for resistance. In many medical treatment facilities, identification of *Neisseria gonorrhea* is done rapidly and simply with a genetic probe, which identifies specific parts of the bacterium's genome. Unfortunately, this eliminates the need for culturing the organism, and thus precludes antibiotic sensitivity testing.

Aware of this pitfall and of reports of cases of gonorrhea, which did not respond to ciprofloxacin, the State of Hawaii Department of Health has been carrying on surveillance for resistant *Neisseria gonorrhea* with standard culturing and sensitivity testing. The Department recently issued a medical alert citing increased frequency of ciprofloxacin-resistant *Neisseria gonorrhea* from 1.4 per cent of isolates in 1997 to 9.5 per cent in 1999. Many of the resistant isolates have an epidemiologic connection with other areas in the Pacific basin.

While quinolone resistance in *Neisseria gonorrhea* in Asia and the Pacific is not a new development, this recent information reinforces importance of choosing an antibiotic for gonorrhea carefully. Even though ciprofloxacin and ofloxacin are listed as recommended antibiotics for gonorrhea in the current CDC guidelines for treatment of sexually transmitted diseases, ceftriaxone (125 mg IM, CDC recommendation; 250mg IM, product insert recommendation) or cefixime (400mg orally) should be used for uncomplicated gonococcal infections which may have been acquired in the Pacific region. This is standard in Navy and Marine Corps practice, but is worth repeating. Doxycycline or azithromycin should continue to be given to cover possible co-existing chlamydia infection.

The importance of remaining vigilant for the development of new types of resistance is great, especially when dealing with sexually transmitted diseases. A presumed case of gonorrhea, which does not respond to an appropriate antibiotic regimen, should be reported to the nearest NEPMU or to an infectious disease specialist.

Epidemiology Department
NEPMU-6

Hep, hep! For Instructor Prep!

Many moons ago when I used to play with alligators and rattlesnakes and pythons at a large reptile zoo, a German tourist came to visit. In the brashness of my earlier days and in an effort to impress my fellow herpetologists, I whipped out some of my high school German on our visitor. I don't recall what it was I was trying to say, but I do remember the German gentleman looking back at me blankly, cocking his head a little, and saying *"Übe, übe, übe!"* Stunned, I just laughed back and downplayed his admonition, as if he had delivered a good joke. Little did my friends know that he had told me to "Practice, practice, practice!" In other words, if I was going to try something new, I had better know what I was doing. It was a good lesson, and I took his message to heart. Since then, I have always done my best to prepare before venturing into something new.

So what does this have to do with preventive medicine? Prevention's greatest asset is awareness, and one of the best ways to make people aware is through training. A key function of preventive medicine specialists is to provide training; proper preparation will make that training effective.

FAMILIARITY

Although it occurs before the lesson, Instructor Prep is an important part of teaching. Like my German friend's *"Übe, übe, übe!"* an instructor must practice, practice, practice. In Navy training circles, this is also known as "Rehearse, rehearse, rehearse!" Proper practice hones an instructor's message, bolstering credibility. Practiced presentations are less mechanical, and more conversational. A high comfort level with your material allows you to concentrate less on the lesson plan and more on your audience. Also, instructors who are familiar with their content find it easier to illustrate key points with analogies and pertinent "sea stories." Not long ago, a Commander in our unit gave a Navy GMT lesson on Operational Risk Management. In describing the minuscule possibility of a Category IV mishap occurring, as illustrated on his chart, he used the old analogy of a million monkeys banging away on a million typewriters, with one of them eventually coming up with the text of the Bible. A silly analogy, maybe, but he got a big laugh and made his point well, before moving on to the higher risk Categories.

PITFALLS

Rehearsing also reveals weak spots in a presentation - like the lack of a transition or a need for supporting re-

(Continued on page 13)

Hail & Farewell

Welcome Aboard! **Fair Winds and Following Seas!**

Hep, Hep! For Instructor Prep!

(Continued from page 12)

search - as well as identifying problems with training aids. For all their glory, training aids can be a stumbling block on the way to good teaching. If you are fortunate enough to use computer generated slides and a computer projector, make sure you review a few simple points before your class:

Do your slides have dark text on a light background, or vice versa?

Light on light or dark on dark (text on background) can be frustrating for students to try to read and follow. Be sure to check your slides with the same equipment you will be using to teach your class, ie, the projector, as bright backgrounds tend to wash out when projected. This also holds true for the film transparencies, if you are using them.

Too many words?

Another thing to keep in mind is the way your represent your information. It is natural to think of ideas in terms of words and phrases, but most audiences find it difficult to sit through presentations of only bullets and text. Once your students begin reading your slides for themselves, the need for an instructor is diminished. Instead, buttress your ideas with graphics. Retention of concepts is dramatically increased when easy to understand illustrations, graphics, charts, drawings, and photographs are used instead of words. Your spoken presentation, supported by appropriate graphics, will set you apart from the crowd.

The equipment itself:

Is the computer set up properly? Is your file still in the same place? (Does your shortcut still work?) Do you need an extension cord for the projector? When using modern equipment, there are a myriad of details that can delay or detract from your presentation. The only way to discover them is with a dress rehearsal, in the same location where you will be teaching. It is a good idea to have a trusted colleague to teach to, if at all possible, to help coach you toward a better lesson. Remember to choose someone who understands what coaching is all about. Anyone can criticize; you need someone who can provide a positive, constructive critique.

SOMETIMES, NO MATTER WHAT . . .

Several years after that verbal spanking from the German tourist, I was living in Arizona and visited Mexico whenever I could. During one particular trip, there happened to be a baseball game in progress. My friend and I went to the game, and found out it was the same league that Fernando Valenzuela had played in. It was a pretty good game, and I was curious about the teams. Determined to be prepared this time for another venture into foreign language, I carefully constructed a question in Spanish. Again, I thought it would be neat to impress my friend with my language "prowess." Finally, I was ready. I leaned over toward a Mexican gentleman sitting near me, and said, ever so carefully, *"Por favor, Señor, de que cuidades estan estes juegos?"* I was trying to ask what towns the teams where from. He looked at me, cocked his head (again with the head), scrunched his face a little, and said. *"What do you want to know?"* in plain old American English! So much for preparation! Sometimes, no matter how well you prepare, you are going to overlook something or run into a snag. In my excitement to speak Spanish, the possibility of the residents of that border town speaking English had not dawned on me.

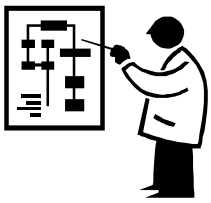
(Continued on page 14)

Hep, hep! For Instructor Prep!

(Continued from page 13)

Nevertheless, regardless of any snags, and to the extent that it is possible in our fast moving Navy, keep on *Übe, übe, übe*-ing. When you get to the point that you make your teaching look so easy that anyone can do it, give yourself a pat on the back. You will know that it is well deserved, and how long it took to get there. Strive for excellence, but don't knock yourself out. Audiences don't expect perfect presentations, but they do expect prepared presenters. A well-prepared instructor demonstrates respect for the students' time and effort in coming to the class. Prepare well.

Excellence will be your result, and your message of prevention will last.



NEPMU-6

Fleet Public Health

DEPARTMENT OF THE NAVY
OFFICER IN CHARGE
NAVENPVNTMEDU FIVE
3235 ALBACORE ALLEY
SAN DIEGO CA 92136-5199
OFFICIAL BUSINESS